Attorney Docket No. 0028-011564

REMARKS

Claims 1-30 are pending in the instant application. According to the above

amendments, claims 1, 6, 15 and 26 have been amended. Claim 5 has been cancelled.

Support for the amendments to the claims may be seen in Figs. 5 and 6 of the application as

well as in paragraphs [0026] and [0030] of the application, as it was published on January 9,

2003.

The Examiner rejected independent apparatus claims 1 and 15 as being

obvious over Schlitt in view of Kurzinski. Schlitt discloses a combustion tube burner having

a mixer tube 24 which conveys primary air and fuel. Secondary air is conveyed through

openings 16 and also through a baffle 26 which has spacer fingers 27. Importantly, the

secondary air extends on both sides of a central axis of the combustion tube burner. Schlitt is

directed to improving burner turn down ranges and variations in flame length, as set forth in

column 1, lines 6-18.

Kurzinski is directed to a burner having concentric tubes, the inside one of

which conveys air and oxygen in an axial manner, and fuel is introduced around the periphery

of the inner tube via outer tube 11. The air is inspirated into the burner by a high-pressure

injection of oxygen through a throat section 20. The object of the invention in Kurzinski is to

reduce the amount of substantially pure oxygen required during heating.

By contrast, amended claims 1 and 15 are directed to a burner for non-

symmetrical combustion, wherein the air opening has its entire cross sectional area located on

an opposite side of the burner central axis from the fuel exit opening. This is in stark contrast

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to Schlitt, wherein the secondary air is also introduced on the same side of the burner central

axis as the primary air/fuel opening 24. Furthermore, both claims 1 and 15 require a burner

port block, which is present in neither Schlitt nor Kurzinski. The Examiner attempted to

equate the burner port block in claims 1 and 15 with element 11 in Schlitt. However, the

element 11 in Schlitt, a burner head, is positioned upstream of the air opening in Schlitt, not

downstream of the air opening, as required by claims 1 and 15.

Schlitt has nothing to do with NOx reduction, rather it is directed to turn down

range and flame length considerations. Likewise, Kurzinski is not directed to NOx reduction

but rather to minimizing the use of pure oxygen in a burner. Furthermore, Kurzinski portrays

circumferential introduction of the fuel around the oxygen/air mixture. This is not "non-

symmetrical combustion" as required by claims 1 and 15. Air and fuel are introduced on

both sides of the burner central axis, in Kurzinski, not on opposite sides as required by claims

1 and 15. Thus, one skilled in the art would not have looked to either Schlitt or Kurzinksi for

an answer to the problems solved by the invention set forth in amended claims 1 and 15.

Claims 2-4, 6-14 and 16-25 which depend from and at further limitation to

claims 1 and 15, respectively, are also deemed allowable for the reasons above.

The Examiner rejected method claim 26 as obvious over Schlitt in view of

Kurzinski and further in view of Morimoto and Robertson. Applicant has amended claim 26

to also clarify that the air opening in the claimed method has its entire cross-sectional area on

the opposite side of the burner's central axis from the fuel exit opening. Thus, for the same

reasons above, claim 26 would not have been obvious in view of Schlitt in combination with

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Kurzinski. As to Morimoto, that patent teaches symmetrical combustion, not providing an air

opening on an opposite side of the burner central axis, as now required by claim 26.

Likewise, Robertson et al. does not teach or suggest introducing air/oxygen on one side of a

burner central axis with fuel introduced on the other side.

Finally, the Kurzinski apparatus as compared to the method of claim 26, would exhibit

unacceptably high NOx production, since in Kurzinski the oxygen and fuel are mixed

immediately without an intervening step of recirculating products of combustion into the

combustion air, as now required by the "vitiating" step in amended claim 26. This is

consistent with the fact that Kurzinski is not directed to NOx reduction.

Withdrawal of the rejections and allowance of claims 1-4 and 6-30 is

requested.

Respectfully submitted

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